

## 1 General

### 1.1 Customer Information

Company	PICEANCE VLY
Representative	
Address	

### 1.2 Well Information

Well	GM 13-23	Wellbore No.	
Well Name	GM 13-23	Common Name	GM 13-23
Project	GV 23-06S-096W	Site	MV 10-23 Pad
Vertical Section Azimuth	308.51 (°)	North Reference	True
Origin N/S		Origin E/W	
Spud Date	6/17/2011	UWI	GM 13-23
Active Datum	KB @6,002.0ft (above Mean Sea Level)		

## 2 Survey Name

### 2.1 Survey Name: Survey #1

Survey Name	Survey #1	Company	
Started	6/17/2011	Ended	
Tool Name	MWD	Engineer	

#### 2.1.1 Tie On Point

MD (ft)	Inc (°)	Azi (°)	TVD (ft)	N/S (ft)	E/W (ft)
0.0	0.00	0.00	0.00	0.00	0.00

#### 2.1.2 Survey Stations

Date	Type	MD (ft)	Inc (°)	Azi (°)	TVD (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (°/100ft)	Build (°/100ft)	Turn (°/100ft)	TFace (°)
6/17/2011	Tie On	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6/17/2011	NORMAL	85.0	0.35	203.47	85.00	-0.24	-0.10	-0.07	0.41	0.41	0.00	203.47
	NORMAL	116.0	0.53	227.02	116.00	-0.42	-0.25	-0.07	0.81	0.58	75.97	57.32
	NORMAL	147.0	0.70	259.01	147.00	-0.56	-0.54	0.07	1.21	0.55	103.19	80.25
	NORMAL	177.0	0.97	250.14	176.99	-0.76	-0.95	0.27	0.84	0.67	50.73	65.90
	NORMAL	208.0	1.23	275.45	207.99	-0.74	-1.53	0.74	1.76	0.84	81.65	74.89
	NORMAL	238.0	1.58	290.74	237.98	-0.56	-2.24	1.41	1.70	1.17	50.97	54.78
	NORMAL	269.0	1.94	298.39	268.97	-0.28	-3.05	2.21	1.61	1.05	52.45	77.46
	NORMAL	299.0	2.82	310.08	298.94	0.56	-4.11	3.57	3.34	2.93	38.97	34.81
	NORMAL	330.0	3.96	313.33	329.88	1.78	-5.48	5.40	3.73	3.68	10.48	11.19
	NORMAL	360.0	4.93	311.13	359.79	3.02	-7.35	7.63	3.37	3.29	14.00	20.74
	NORMAL	391.0	6.16	314.91	390.65	5.39	-9.38	10.70	4.14	3.97	12.19	18.43
	NORMAL	421.0	7.30	312.01	420.44	7.81	-11.94	14.20	3.96	3.80	-9.67	341.96
	NORMAL	452.0	8.45	313.86	451.15	10.31	-15.21	18.32	3.84	3.83	2.97	6.52
	NORMAL	482.0	9.50	315.26	480.78	13.99	-18.38	23.09	3.57	3.50	4.67	12.44
	NORMAL	543.0	9.68	310.08	541.01	19.87	-25.88	32.62	1.50	1.35	-4.15	332.29
6/18/2011	NORMAL	614.0	9.85	310.20	610.99	27.63	-35.09	44.66	0.24	0.24	0.17	6.89
	NORMAL	706.0	10.64	309.36	701.52	38.09	-47.66	61.02	0.87	0.86	-0.91	348.88
	NORMAL	720.0	10.90	309.31	715.27	39.75	-49.69	63.63	1.86	1.86	-0.36	357.92
	NORMAL	822.0	10.99	305.88	815.42	51.56	-65.03	82.99	0.64	0.09	-3.36	276.18
	NORMAL	883.0	10.26	306.83	875.37	58.23	-74.09	94.23	1.23	-1.20	1.56	166.97

## 2.1.2 Survey Stations (Continued)

Date	Type	MD (ft)	Inc (°)	Azi (°)	TVD (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (°/100ft)	Build (°/100ft)	Turn (°/100ft)	TFace (°)
6/18/2011	NORMAL	974.0	9.87	310.46	964.97	68.14	-86.51	110.12	0.82	-0.43	3.99	123.36
	NORMAL	1,069.0	10.07	311.68	1,058.54	78.95	-98.91	126.55	0.31	0.21	1.28	47.17
	NORMAL	1,165.0	9.02	306.04	1,153.21	88.96	-111.26	142.45	1.46	-1.09	-5.87	218.93
	NORMAL	1,260.0	8.97	305.70	1,247.04	97.66	-123.30	157.29	0.08	-0.05	-0.36	226.59
	NORMAL	1,356.0	8.71	308.08	1,341.90	106.51	-135.10	172.03	0.47	-0.27	2.48	126.58
	NORMAL	1,451.0	8.20	306.65	1,435.87	114.99	-146.19	186.00	0.58	-0.54	-1.51	201.70
	NORMAL	1,547.0	7.29	307.74	1,530.99	122.81	-156.50	198.93	0.96	-0.95	1.14	171.37
	NORMAL	1,642.0	8.01	317.31	1,625.15	131.36	-165.76	211.50	1.54	0.76	10.07	65.33
	NORMAL	1,738.0	8.73	309.22	1,720.13	140.89	-175.94	225.39	1.44	0.75	-8.43	297.40
6/19/2011	NORMAL	1,834.0	8.01	306.41	1,815.11	149.46	-186.96	239.36	0.86	-0.75	-2.93	208.22
	NORMAL	1,928.0	9.13	308.68	1,908.06	158.01	-198.06	253.37	1.24	1.19	2.41	17.93
	NORMAL	2,023.0	8.78	309.11	2,001.90	167.30	-209.57	268.15	0.38	-0.37	0.45	169.39
	NORMAL	2,119.0	8.06	307.39	2,096.86	176.01	-220.60	282.21	0.79	-0.75	-1.79	198.43
	NORMAL	2,214.0	9.73	309.32	2,190.72	185.14	-232.10	296.90	1.79	1.76	2.03	11.09
	NORMAL	2,310.0	10.01	311.03	2,285.30	195.75	-244.67	313.34	0.42	0.29	1.78	47.16
	NORMAL	2,406.0	9.42	310.97	2,379.92	206.38	-256.90	329.53	0.61	-0.61	-0.06	180.95
	NORMAL	2,500.0	8.92	309.13	2,472.72	216.03	-268.36	344.50	0.62	-0.53	-1.96	209.48
	NORMAL	2,594.0	8.04	308.72	2,565.69	224.74	-279.14	358.36	0.94	-0.94	-0.44	183.73
	NORMAL	2,689.0	7.46	309.80	2,659.82	232.84	-289.06	371.17	0.63	-0.61	1.14	166.44
	NORMAL	2,784.0	7.15	308.29	2,754.05	240.45	-298.44	383.25	0.38	-0.33	-1.59	211.02
	NORMAL	2,880.0	7.60	309.21	2,849.26	248.17	-308.05	395.57	0.48	0.47	0.96	15.16
	NORMAL	2,975.0	8.58	309.20	2,943.31	256.62	-318.41	408.94	1.03	1.03	-0.01	359.91
	NORMAL	3,069.0	8.46	308.03	3,036.27	265.31	-329.29	422.86	0.22	-0.13	-1.24	234.73
	NORMAL	3,161.0	9.84	309.30	3,127.10	274.46	-340.70	437.49	1.52	1.50	1.38	8.95
	NORMAL	3,257.0	9.06	309.22	3,221.79	284.43	-352.91	453.25	0.81	-0.81	-0.08	180.93
	NORMAL	3,352.0	8.18	308.51	3,315.72	293.37	-363.99	467.49	0.93	-0.93	-0.75	186.54
	NORMAL	3,448.0	9.59	306.30	3,410.57	302.36	-375.78	482.31	1.51	1.47	-2.30	345.30
	NORMAL	3,543.0	9.56	307.16	3,504.24	311.81	-388.45	498.11	0.15	-0.03	0.91	102.27
	NORMAL	3,638.0	9.76	305.18	3,597.90	321.21	-401.31	514.03	0.41	0.21	-2.08	300.07
	NORMAL	3,734.0	9.18	304.58	3,692.59	330.25	-414.27	529.79	0.61	-0.60	-0.63	189.36
	NORMAL	3,829.0	8.71	303.97	3,786.43	338.57	-426.47	544.53	0.50	-0.49	-0.64	191.11
	NORMAL	3,924.0	8.46	301.78	3,880.37	346.27	-438.38	558.64	0.43	-0.26	-2.31	231.51
	NORMAL	4,019.0	8.69	310.60	3,974.31	354.62	-449.77	572.75	1.40	0.24	9.28	84.46
	NORMAL	4,114.0	8.90	313.20	4,068.19	364.32	-460.58	587.24	0.47	0.22	2.74	63.44
	NORMAL	4,210.0	9.32	313.17	4,162.98	374.72	-471.66	602.39	0.44	0.44	-0.03	359.34
	NORMAL	4,305.0	8.79	313.70	4,256.80	385.00	-482.52	617.29	0.56	-0.56	0.56	171.32
	NORMAL	4,399.0	8.44	313.35	4,349.74	394.70	-492.73	631.32	0.38	-0.37	-0.37	188.35
	NORMAL	4,494.0	8.71	313.61	4,443.68	404.44	-503.00	645.43	0.29	0.28	0.27	8.30
	NORMAL	4,588.0	9.38	308.77	4,536.51	414.15	-514.13	660.18	1.08	0.71	-5.15	308.96
	NORMAL	4,684.0	9.67	308.16	4,631.18	424.03	-526.57	676.06	0.32	0.30	-0.64	340.51
6/20/2011	NORMAL	4,780.0	9.68	305.61	4,725.82	433.71	-539.47	692.19	0.45	0.01	-2.66	270.08
	NORMAL	4,875.0	8.15	305.97	4,819.67	442.32	-551.41	706.89	1.61	-1.61	0.38	178.09
	NORMAL	4,971.0	6.76	309.63	4,914.86	449.92	-561.27	719.34	1.53	-1.45	3.81	162.95
	NORMAL	5,066.0	6.38	310.02	5,009.23	456.88	-569.62	730.21	0.40	-0.40	0.41	173.50
	NORMAL	5,162.0	5.55	311.22	5,104.71	463.37	-577.20	740.17	0.87	-0.86	1.25	172.05
	NORMAL	5,258.0	3.94	313.72	5,200.38	468.71	-583.08	748.10	1.69	-1.68	2.60	173.92
	NORMAL	5,353.0	1.92	317.02	5,295.25	472.13	-586.52	752.92	2.13	-2.13	3.47	176.87
	NORMAL	5,448.0	1.51	306.23	5,390.21	474.03	-588.61	755.75	0.55	-0.43	-11.36	212.91
	NORMAL	5,544.0	1.49	304.03	5,486.17	475.48	-590.67	758.25	0.06	-0.02	-2.29	249.75
	NORMAL	5,639.0	1.38	289.93	5,581.14	476.56	-592.77	760.57	0.39	-0.12	-14.84	245.73
	NORMAL	5,735.0	1.89	279.72	5,677.11	477.22	-595.42	763.05	0.61	0.53	-10.64	325.10
	NORMAL	5,831.0	1.51	290.16	5,773.06	477.92	-598.16	765.64	0.51	-0.40	10.88	145.96
	NORMAL	5,926.0	1.14	303.96	5,868.04	478.88	-600.12	767.77	0.51	-0.39	14.53	145.98
	NORMAL	6,021.0	0.44	36.93	5,963.03	479.70	-600.69	768.72	1.31	-0.74	97.86	159.30
	NORMAL	6,117.0	0.48	205.74	6,059.03	479.63	-600.64	768.64	0.95	0.04	175.84	174.16
6/21/2011	NORMAL	6,213.0	1.04	207.06	6,155.02	478.50	-601.21	768.38	0.58	0.58	1.38	2.45
	NORMAL	6,308.0	0.69	261.29	6,250.01	477.64	-602.17	768.60	0.89	-0.37	57.08	138.67

## 2.1.2 Survey Stations (Continued)

Date	Type	MD (ft)	Inc (°)	Azi (°)	TVD (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (°/100ft)	Build (°/100ft)	Turn (°/100ft)	TFace (°)
6/21/2011	NORMAL	6,404.0	1.28	356.98	6,346.00	478.62	-602.80	769.70	1.58	0.61	99.68	122.67
	NORMAL	6,499.0	1.20	343.10	6,440.98	480.64	-603.14	771.23	0.33	-0.08	-14.61	248.22
6/22/2011	NORMAL	6,594.0	0.97	307.72	6,535.96	482.08	-604.07	772.85	0.73	-0.24	-37.24	233.93
	NORMAL	6,690.0	1.32	263.08	6,631.95	482.44	-605.81	774.44	0.97	0.36	-46.50	268.10
	NORMAL	6,784.0	1.02	232.13	6,725.93	481.80	-607.54	775.39	0.73	-0.32	-32.93	229.68
	NORMAL	6,880.0	0.70	179.76	6,821.92	480.69	-608.21	775.23	0.85	-0.33	-54.55	223.09
	NORMAL	6,975.0	0.95	158.79	6,916.91	479.37	-607.93	774.19	0.41	0.26	-22.07	298.82
	NORMAL	7,070.0	0.67	186.63	7,011.90	478.09	-607.71	773.21	0.50	-0.29	29.31	138.81
	NORMAL	7,166.0	0.62	167.63	7,107.89	477.02	-607.66	772.51	0.23	-0.05	-19.79	247.46
	NORMAL	7,260.0	2.05	221.15	7,201.87	475.26	-608.66	772.20	1.87	1.52	56.94	70.03
	NORMAL	7,356.0	1.64	220.70	7,297.82	472.93	-610.68	772.33	0.43	-0.43	-0.47	181.80
6/23/2011	NORMAL	7,450.0	0.76	166.98	7,391.80	471.30	-611.42	771.89	1.42	-0.94	-57.15	207.24
	NORMAL	7,546.0	1.11	198.26	7,487.79	469.80	-611.57	771.07	0.63	0.36	32.58	71.87
	NORMAL	7,595.0	1.07	195.75	7,536.78	468.90	-611.84	770.73	0.13	-0.08	-5.12	228.80
	NORMAL	7,650.0	1.02	192.88	7,591.77	467.93	-612.09	770.32	0.13	-0.09	-5.22	224.88